

## **SOL ORCHARD - RAMONA PHOTOVOLTAIC SOLAR FARM**

### **PROJECT LOCATION**

The proposed Project site is located just south of the community of Ramona, California, within north-central San Diego County. The Project site is bordered by Warnock Drive to the north and Ramona Street to the west, and is generally located between Ramona Street to the west and San Vicente Road further to the east. The affected County Assessor Parcel Number (APN) is 283-083-07. Refer to Figure 1, Regional Location Map, and Figure 2, Local Vicinity Map.

### **PROPOSED PROJECT**

The Project proponent is preparing an application for development and operation of a photovoltaic (PV) solar farm to be located on privately-held lands near Ramona. The Project would require approval from the County of San Diego for a Major Use Permit (MUP) to allow for the construction, operation, and maintenance of such facilities for the long-term generation of clean solar energy. The proposed facilities would have an overall production capacity of 7.5 Megawatts (MW) (alternating current – AC). The Project is expected to supply roughly 10 percent of power at peak load conditions and 20 to 25 percent during lighter load conditions to the Ramona area, depending on the time of day. No export to transmission is anticipated.

The proposed PV solar facilities would be installed on a portion of an approximately 110-acre parcel to achieve the intended MW output; however, development and MUP authority would be limited to 42.7 acres of the parcel, allowing the unaffected acreage to remain in its present state (agricultural use/livestock raising/dry farming). The Project design would consist of photovoltaic solar panels that are mounted on a collection of single-axis tracking (SAT) systems supported by machine-driven H-pile posts. In isolated cases where geotechnical constraints are encountered, a ballast foundation system would be provided. The solar panels would be either mono-crystalline or poly-crystalline silicon cell modules.

The solar panels would be aligned in rows that rotate to face east in the morning and west in the afternoon hours, tracking the sun about a north/south axis to maximize solar absorption. The panels would be rack-mounted three-wide, measuring approximately 9.5 across each row when flat (horizontal). When fully inclined to 45-degrees, the upper edge of the tallest panels would be 8-11.5 feet from the ground surface depending on terrain. When flat all panels would be 4.5-8 feet above ground depending on terrain. As the maximum height of the proposed PV solar panels would range from approximately 8-11.5 feet as measured from ground surface, the solar panels would not represent elements

of large scale or height within the existing landscape. The length of each row of panels would be approximately 150 feet along the north/south axis. The ultimate arrangement/number of PV solar panels, racking, inverter pads and structures, and internal access are shown in on the MUP Plot Plan to illustrate the general configuration of the proposed solar collection system; however, this layout is subject to modification at final engineering design. Refer to Figure 3A, Major Use Permit Plot Plan (Sheet 1 of 3), and Figure 3B, Major Use Permit Plot Plan (Sheet 2 of 3).

Energy generated by the Project would be delivered to an existing 12 kV distribution line that runs parallel to Warnock Drive. Connection would be made from the Project site via overhead connection.

In addition, the Project design includes a maximum ten-foot wide cleared path along the edge of pavement (EOP) of Warnock Drive and Ramona Street.

Landscaping is proposed for screening purposes along the western and northern portions of the MUP area perimeter to reduce views of the proposed Project from offsite vantage points; refer to Figure 3C, Major Use Permit (Sheet 3 of 3) – Conceptual Landscape Plan, for the proposed treatment along particular perimeter segments. The use of a variety of vegetation is proposed, including but not limited to, shrubs such as toyon, scrub oak, and sugar bush, or evergreen vine such as creeping fig, English ivy, cape honey suckle, and star jasmine. Additionally, a 6-foot high chain-link security fence (plus one foot of two-strand barb wire) would be installed along the MUP area perimeter; an existing barbed wire fence is present along the perimeter of the subject 110-acre property.

## GENERAL PLAN LAND USE DESIGNATIONS AND ZONING

General Plan land use designations and zoning for the affected parcel are given in Table 1, below. No changes to either the existing General Plan land use or zoning are proposed with the Project.

**TABLE 1**  
**EXISTING GENERAL PLAN LAND USE / REGIONAL CATEGORY / ZONING**

Assessor Parcel Number	Approximate Acreage	General Plan Land Use Designation	Regional Category	Zoning
283-083-07	42.7*	SR-4	Semi-Rural Residential	(A72) General Agriculture

\* The MUP area would be limited to approximately 42.7 acres of the 110-acre parcel.

### General Plan Update

The County of San Diego General Plan Update was adopted on August 3, 2011 by the County Board of Supervisors. The following demonstrates conformance of the proposed

Project with applicable goals and policies given in the General Plan Update. In addition, the Ramona Community Plan, which is part of the General Plan Update, also identifies goals and policies at the community level that may affect the Project.

## **Chapter 5 – Conservation and Open Space Element**

### **Air Quality, Climate Change and Energy**

#### **GOAL COS-14 – Sustainable Land Development**

##### **Policies**

**COS-14.4 Sustainable Technology and Projects.** Require technologies and projects that contribute to the conservation of resources in a sustainable manner, that are compatible with community character, and that increase the self-sufficiency of individual communities, residents, and businesses.

The Project is intended to allow for the installation and operation of a photovoltaic electrical generation facility and represents an opportunity to provide residents of Ramona and the greater surrounding area with clean source of electrical power from renewable sources. The Project is expected to supply roughly 10 percent of power during peak load conditions and 20 to 25 percent during lighter load conditions to the Ramona area, depending on the time of day. As future population growth continues within San Diego County, the demand for electrical service will continue to increase accordingly. The Project represents an additional clean source of electrical power that would supplement energy currently supplied by the existing power grid, thereby reducing the potential for power shortages to occur and decreasing demands on the capabilities of the existing distribution system.

The Project has been designed to respect the existing rural character of the Ramona community with regard to scale, bulk, height, materials and color, and light and glare effects. Furthermore, design measures are proposed, such as the installation of landscape screening, to minimize potential effects on the existing visual setting and adjacent lands. Refer also to the *Visual Resources/Aesthetics Analysis* (November 2011) prepared for the Project for additional discussion of the visual compatibility of the Project with the surrounding community (available under separate cover).

**COS-14.3 Incentives for Sustainable and Low GHG Development.** Provide incentives such as expedited project review and entitlement processing for developers that maximize use of sustainable and low GHG land development practices in exceedance of State and local standards.

**COS-14.7 Alternative Energy Sources for Development Projects.** Encourage development projects that use energy recovery, photovoltaic, and wind energy.

The Project proposes development and operation of a PV solar farm for the generation of electrical power from renewable sources. The PV solar facilities would have an overall production capacity of 7.5 Megawatts (MW) (alternating current – AC). The proposed use is allowed under the existing General Plan land use and zoning designations with approval of a MUP.

The Project proposes a PV solar facility for the generation of clean energy from renewable sources. The use of required vehicles and equipment during the construction phase for the Project would not result in significant impacts on air quality or significant contribution to the effects of GHG. Additionally, long-term operation of the facilities would not result in significant impacts with regard to air quality or GHG, due to the nature of the proposed use.

## **GOAL COS-18 – Sustainable Energy**

### **Policies**

**COS-18.1 Alternate Energy Systems Impacts.** Require alternative energy system operators to properly design and maintain these systems to minimize adverse impacts to the environment.

All potential impacts with regard to biological, cultural, hydrology/water quality, and visual resources, air quality, and noise have been analyzed and would be avoided and/or reduced to less than significant through implementation of design or mitigation measures proposed and adopted as conditions of approval for the Project. The technical analyses prepared for the Project are available under separate cover.

## **CONSISTENCY WITH CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006 (ASSEMBLY BILL 32)**

The proposed Project would be consistent with and implement the goals and mandates of Assembly Bill 32 (AB 32), referred to as the California Global Warming Solutions Act of 2006. This Bill establishes a State goal of reducing greenhouse gas (GHG) emissions to 1990 levels by the year 2020.

The California Air Resources Board (CARB) adopted the AB 32 Scoping Plan that outlines the primary strategies California will use to reduce GHG emissions. The Scoping Plan has a range of GHG reduction actions which include among many other things, proposes full deployment of the California Solar Initiative. In addition, the proposed San Diego County General Plan Update is required to comply with the rules and regulations that would achieve the GHG reductions stated in AB 32.

The Project would provide clean renewable energy that would reduce dependence on energy generated from fossil fuels. This Project would offset GHG emissions that would



otherwise be produced by fossil fuel plants. Therefore, the Sol Orchard Ramona Solar Farm would be consistent with the goals of AB 32 and also support the County's commitment to reduce GHG emissions.

## **RAMONA COMMUNITY PLAN (ADOPTED AUGUST 3, 2011)**

### **Community Background**

#### **c. Environmental Setting**

##### **ENERGY**

*Most of the electrical energy used in the CPA is supplied by San Diego Gas and Electric Company. The sources of this energy are far from Ramona; however, as is the case with air quality, conservation measures must be applied on a region-wide basis, and each individual and public agency will increasingly be required to modify their existing practices. Additionally, however, the use of local energy resources from the sun and wind are encouraged in the Ramona Community Plan, as an alternative to depend on, and further incremental depletion of, regional supplies.*

The Project proposes development and operation of a PV solar farm to be located on privately-held lands near Ramona for the long-term generation of clean solar energy. The proposed facilities would have an overall production capacity of 7.5 MW. The Project is expected to supply roughly 10 percent of power during peak load conditions and 20 to 25 percent during lighter load conditions to the Ramona area, depending on the time of day.

#### **1. Land Use (LU)**

##### **1.1 Community Character**

Goal LU 1.1. The rural atmosphere of the Ramona community is preserved and enhanced, while encouraging a balance of land uses that are compatible with a country lifestyle.

As stated above, the proposed use would be allowed under the existing land use and zoning designations with approval of a MUP, and is therefore consistent with the type of development intended by the County. The Project has been designed to respect the existing rural character of the Ramona community with regard to scale, bulk, height, materials and color, and light and glare effects. Design measures, such as landscape screening, are also proposed to minimize potential Project effects on the existing visual setting and surrounding uses. Refer also to the Visual Resources/Aesthetics Analysis (November 2011) prepared for the Project (available under separate cover).

##### **1.3 Community Conservation and Protection**

Refer to General Plan Goals and Policies.

The proposed Project would be consistent with applicable goals and policies of the County General Plan Update. Refer to the discussion above under County of San Diego General Plan Update.

## **2. Circulation and Mobility**

### **2.1 Integrated Mobility and Access**

Goal CM 1.1 A circulation system that accommodates pedestrian, equestrian, cycling, as well as vehicular users.

The Project design does not include any improvements to adjacent Warnock Drive or Ramona Street, other than minor driveway improvements to allow for adequate access into the site; however, the Project design includes a maximum ten-foot wide cleared pathway along the EOP of Warnock Drive and Ramona Street. The Project accommodates the future alignment of Dye Road proposed within the western portion of the subject parcel, consistent with the County of San Diego General Plan Circulation Element. The alignment is proposed to extend from Ramona Street to Warnock Drive, with one additional proposed roadway connection to each of these streets along the length of the alignment (four total); refer to Figure 3A, Major Use Permit Plot Plan (Sheet 1 of 3).

### **2.2 Local Road Network**

Goal CM 2.1 A circulation network which will efficiently serve present and future land uses, will facilitate movement between Ramona and other communities, but will not negatively impact the character of the community.

Policy CM 2.1.3 Ensure that road design follows the natural contours thereby minimizing any impact upon the aesthetic and environmental character of the planning area.

Refer to response to GOAL CM 1.1, above. The Project does not propose any improvements to Ramona Street or Warnock Drive. The Project does provide for the future extension of Dye Road through a portion of the site, consistent with the County Circulation Element. The Project applicant would not be responsible for construction of Dye Road. The road would be constructed to County roadway design standards that would be consistent with the character of the Ramona community.

### **2.10 Infrastructure and Utilities**

#### **d. Energy (Natural Gas and Electricity)**

Refer to General Plan Goals and Policies.

The proposed Project would be consistent with applicable goals and policies of the County General Plan Update. Refer to the discussion above under County of San Diego General Plan Update.

### **3. Conservation and Open Space (COS)**

#### **3.1 Resource Conservation and Management**

Goal COS 1.1 The conservation, preservation, and wise utilization of resources in the Ramona planning area.

All potential impacts resulting with would be avoided and/or reduced to less than significant through Project design or the implementation of mitigation measures, where appropriate. Additionally, grading requirements for installation of the Project components would be minimal allowing the Project site to remain largely in its natural state. If desired in the future, the Project components could be removed from the site and the land returned to its original use, thereby conserving the existing landscape.

### **C. SCENIC RESOURCES AND HIGHWAYS**

*Designation of selected major scenic routes through the Ramona Community Planning Area will preserve the scenic integrity of the visual corridors of these routes. These routes are designated in the Conservation and Open Space Element of the General Plan Update, Table COS-1 and Figure C-5. The Community Plan recommends implementation of the Scenic Preservation Overlay Zone along the corridors of these routes to provide protection from unsightly land uses until such time as the appropriate agency (State or County) can initiate complete corridor studies and development guidelines. The routes chosen through the Ramona Area also provide links to other scenic highway segments adopted for neighboring communities and cities.*

With regard to the proposed Project, no scenic roadways are located adjacent to or within close proximity to the site. The closest designated County Scenic Highway is San Vicente Road from State Route 78 east to the Cleveland National Forest. San Vicente Road runs approximately 0.25 mile east of the Project site; however, views to the Project site where afforded would be highly reduced and/or would not occur due to distance and intervening topography, vegetation, and development. As such, existing views from this roadway would not be significantly impacted by the proposed Project. Additionally, Highland Valley Road from the limits of the City of San Diego to State Route 67 is also designated as a County Scenic Highway. This roadway is located approximately two miles to the west of the Project site, and any views afforded of the site would be minimized by distance and intervening development and vegetation.

## PURPOSE AND NEED

The Project is intended to allow for the installation and operation of a photovoltaic electrical generation facility and represents an opportunity to provide residents of Ramona and the greater surrounding area with clean source of electrical power from renewable sources. Power from the Project would replace a portion of the energy currently supplied to the power grid by non-renewable sources located far away from Ramona, which require transmission lines to delivery power to the Ramona area. The proposed Project would instead deliver renewable energy to all SDG&E customers in the local area in the cleanest, most efficient manner possible today, by generating renewable power locally and feeding into the existing local distribution system.

In the broad spectrum of renewable energy projects, this Project fits into the category known as Wholesale Distributed Generation (WDG). WDG is currently the most cost-effective renewable energy market segment because it optimizes the utilization of appropriate and available sites to serve local load, while avoiding costs and delays associated with transmission upgrades that are required for larger, central station projects located far from the load being served. Transmission of power over great distances also leads to significant losses to resistance and transformation, and such losses broadly degrade the efficiency and usefulness of such large, central station generators.

The Sol Orchard Ramona Project has the following specific objectives:

- ❖ Deploy a photovoltaic solar technology that has been proven and is readily available, efficient, and environmentally friendly.
- ❖ Generate electricity at a cost that is competitive on the renewable market.
- ❖ Generate electricity in immediate proximity to where it is being consumed, thereby reducing demand on existing transmission lines and the need for more transmission lines.
- ❖ Provide a new source of renewable energy that assists the power purchaser and the State of California in achieving the Renewable Portfolio Standard (RPS).
- ❖ Deliver electricity to the grid as soon as possible. The applicant has executed a long-term Power Purchase Agreement (PPA) with San Diego Gas and Electric to purchase all electricity generated by the Project.
- ❖ Locate the Project on land with non-sensitive habitat in a rural setting where there is direct access to the existing electric distribution system.
- ❖ Minimize potential impacts to the environment by:
  - Locating the Project on disturbed and degraded land to minimize potential impacts to threatened and endangered species and habitat.

- Maximizing the use of existing infrastructure (distribution lines, roads, water source).
- Reducing the emission of greenhouse gases from the generation of electricity.

## **BACKGROUND**

California’s investor-owned utilities are required, under the California’s Renewable Portfolio Standard (RPS), to provide 20 percent of electricity supplied from renewable sources as of 2010. Further Executive Order S-14-08 establishes RPS targets for California that “all retail sellers of electricity shall serve 33 percent of their load with renewable energy by 2020.” The RPS has created a competitive market for contracts to sell renewable energy, with success determined based on “least cost, best fit” criteria.

Sol Orchard LLC was founded with the purpose of developing and constructing renewable energy projects, with projects like the Sol Orchard Ramona Solar Farm selling their electricity and renewable and environmental attributes to an electric utility purchaser under a long-term contract to meet California RPS goals.

## **EXISTING CONDITIONS**

The 42.7-acre MUP area currently supports limited active agricultural operations (dry farming/pasture), as well as portions of fallow agricultural lands. The central portion of the site (not included under authority of the MUP) supports a livestock raising facility supported by three main structures (steel barns), with a number of supporting agricultural structures clustered around the main buildings; refer to Figure 3A, Major Use Permit Plot Plan (Sheet 1 of 3). Two existing man-made ponds are located within proximity to the main buildings in support of the agricultural operations conducted. As these developed areas onsite are not included as part of the MUP and would therefore remain in their present state following Project implementation. Dry farming on portions of the site has also occurred over the past decade; however, such operations would cease with development of the site with the proposed PV solar facilities.

Topography of the site is relatively flat, sloping southwesterly at approximately 0.5 percent. No steep slopes, hillsides, or areas prone to landslide or subsidence occur onsite or on adjacent lands. One minor drainage traverses the site from east to west, flowing to a point along Ramona Street. Two existing ponds are present also onsite in the north-central and western-central portions; however, the presence of water within these ponds is seasonal, and at times, the ponds are dry. These ponds are outside of the area affected by the MUP. Although the Project site is located in southern California, which is a known seismically-active area, review of available data from the San Diego Association of Governments (SANDAG) San Diego Geographical Information Systems (SanGIS)

database, no known existing fault lines or other conditions resulting in potential geologic instability occur onsite or on immediately adjacent lands.

Habitat on the affected parcel is classified as Disturbed Habitat; Disturbed Wetland; Eucalyptus Woodland; Field/Pasture; Intensive Agriculture; Non-Native Grassland; Row Crops; and, Urban/Developed. Due to the low quality of the habitat within the survey area, no special-status plant or wildlife species were determined to have a high potential to reside or nest within the biological survey area. Several special-status raptor species were determined to have the potential to forage over portions of the biological survey area, as such species were observed in existing trees present along the eastern boundary of the subject site (within 100 feet of the property boundary). Mitigation is proposed to minimize potential indirect impacts to these trees and associated raptor species during the construction phase. No unique, rare, threatened, or endangered plants were observed onsite or within close proximity.

The Cultural Resources Letter Report prepared by ASM Affiliates in September 2011 determined that seven significant cultural resources are located within the overall parcel boundaries; refer to Cultural Resources Letter Report available under separate cover. The Project has been designed to avoid these sites, and they are not included as part of the MUP area. Therefore, the Project does not require or propose the dedication of open space easements for the protection of cultural resources, and therefore, no direct impacts to such resources would occur with development of the Project site as proposed.

The proposed Project accommodates the future alignment of Dye Road is proposed within the western portion of the subject parcel, consistent with the County of San Diego General Plan Circulation Element. The alignment is proposed to extend from Ramona Street to Warnock Drive, with one additional proposed roadway connection to each of these streets along the length of the alignment (four total); refer to Figure 3A, Major Use Permit Plot Plan (Sheet 1 of 3).

## **ACCESS / CIRCULATION**

### **Construction Access**

All materials for Project construction would be delivered to the site by truck. The majority of construction traffic would occur on designated truck routes and/or major streets (e.g. Ramona Street or Warnock Drive), with access occurring from the west via Ramona Street. Traffic resulting from construction activities would be temporary and may occur along area roadways as workers and materials are transported to and from the Project area. If directed by the County, and prior to the issuance of a grading/building permit, the Project applicant would prepare a Traffic Construction Mitigation Plan to

ensure that circulation on the affected roadways is not adversely affect and that public safety is maintained.

### **Long-Term Access and Onsite Circulation**

No offsite roadway improvements are proposed along Ramona Road or Warnock Drive to accommodate the Project, with exception of minor improvements to construct the driveway entrance along Ramona Street; however, Project design includes a maximum 10-foot wide pathway (within the right-of-way) along the EOP of Warnock Road and Ramona Street. The pathway would ultimately be in conformance with and constructed and improved to the Community Trails Master Plan Trails and Pathways Design and Construction Guidelines County trail standards.

Long-term primary access to the Project site would be provided from Ramona Street. Dye Road would be extended by the County across the northwest portion of the 110-acre property as a future Capital Improvement Project (CIP); refer to Figure 3A, Major Use Permit Plot Plan (Sheet 1 of 3). The proposed Project has been designed to accommodate the future alignment through the site. Interior access would be provided by a looped 24-foot wide decomposed granite (d.g.) perimeter fire access road that would be maintained to provide a fire buffer as well as to facilitate onsite circulation for emergency vehicles. In addition, a system of internal roadways, 24 feet in width would be provided approximately every 300 feet between the blocks of PV solar panels (approximately 150 feet to either side) for emergency access. Additional roads are also proposed within the MUP area among the rows of PV solar panels for maintenance purposes.

In order to control dust during the life of the Project, a non-toxic, biodegradable, permeable soil-binding agent or permeable rock material would be applied to all disturbed or exposed surface areas as follows: a) A permeable soil-binding agent suitable for both traffic and non-traffic areas shall be used. These agents shall be biodegradable, eco-safe, with liquid copolymers that stabilize and solidify soils or aggregates and facilitate dust suppression; or, b) Alternatively, a permeable rock material consisting of either river stone decomposed granite or gravel could be placed in a thin cover over all exposed surface area in-lieu of the binding agent referenced above. The binding agent would be reapplied approximately every two-three years for maintenance purposes.

### **Lighting**

Limited Project lighting would be installed to allow for security. Low-level lighting would be installed at the main entry gate to facilitate access. All lighting would be operated manually or activated via motion sensors, and would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent ownerships. All lighting would conform to County of San Diego outdoor lighting requirements.

## **Grading**

The PV solar panels would be installed in parallel rows running north/south; refer to Figure 3A, Major Use Permit Plot Plan (Sheet 1 of 3). Although the majority of land surface within the MUP area is flat, portions would be cleared and grubbed to allow for installation of the panels and associated facilities; refer to Figure 3D, Preliminary Grading Plan. Minor grading (2,400 cubic yards of balance cut and fill) would be required for construction of the perimeter access road along the existing San Diego Gas and Electric (SDG&E) easement in the eastern portion of the site. Additionally, a retaining wall ranging in height from 0 to 5 feet would be constructed to allow for construction of the perimeter access road.

## **Project Schedule**

It is anticipated that overall construction of the Project would take approximately six months to complete. Construction crews would work five days per week, eight hours per day.

## **Operation, Security, and Maintenance**

The facilities would be monitored remotely by Sol Orchard LLC or an affiliated company. Once the solar panels are installed, the panels would operate during daylight hours, seven days per week, and 365 days per year. Security would be maintained through installation of an six-foot high chain-link fence that would include one foot of two-strand barbed wire along the perimeter of the MUP areas.

It is anticipated that maintenance of the facilities would require occasional visual inspections and minor repairs. Overall, minimal maintenance requirements are anticipated, as the panels would operate on their own with little human involvement required. On intermittent occasions, the presence of several workers may be required if major repairs or replacement of equipment is required; however, due to the nature of the facilities, such actions are anticipated to be infrequent. Occasional equipment replacement or refurbishing may also be conducted.

To allow for ongoing maintenance, the PV solar panels would be washed with de-ionized (DI) water twice per year. An operation and maintenance contractor will self-perform the panel cleaning with a two-man crew that can achieve washing of 300 to 350 panels per day (or 3,333 panels per MW-DC, or just under 3,500 panels per MW-AC). Panel washing will require half a gallon per panel per washing. Water with a binding agent would also be applied once every two years for dust suppression purposes for the onsite roadways. The binding agent would be applied by a commercial vendor. Irrigation water for landscaping will be taken from the on-site well.



## UTILITIES

### Water

#### *Construction*

Water for construction would be provided by the existing fire hydrant located on Ramona Street, adjacent to the Project site. A meter would be installed at the hydrant to measure water use for the Project and would be maintained by the Ramona Municipal Water District (RMWD). The Project site is located within the RMWD and would not require annexation into the District for service.

Initial construction occurring within the first two months would include brushing/clearing, trenching, post installation, and onsite access road construction. The remainder of the six-month construction period would include racking, module and combiner installation; module wiring; and, final testing/commissioning. A permeable soil-binding agent would be applied during construction to stabilize onsite disturbed soils to reduce fugitive dust. As shown in Table 2, *Total Estimated Water for Temporary Project Construction*, total water demand for the construction phase is estimated to be 385,900 gallons, or 1.18 acre-feet (AF).

**TABLE 2**  
**TOTAL ESTIMATED WATER DEMAND FOR PROJECT CONSTRUCTION**

Activity	Total Estimated Water Demand	Approximate Area Affected	Total Estimated Water Used
Grading	30 gallons / cy	2,400 cy	72,000 gallons
Brushing/Clearing	4,000 gallons/acre brushed	43 acres	172,000 gallons
Soil Binding	3,300 gallons/acre	43 acres	141,900 gallons
<b>Total Construction Water</b>	---	---	<b>385,900 gallons 1.18 AF)</b>

<sup>1</sup> One acre-foot (AF) = 325,851 gallons.

#### *Operation and Maintenance*

An estimated 70,950 gallons would be required every two years (35,475 gallons per year) for maintenance activities related to dust suppression purposes. In addition, it is anticipated that the PV solar panels would be washed twice per year to remove dust particles and other buildup to ensure optimum solar absorption. Panel washing is estimated to require one gallon of water per PV solar module on an annual basis (approximately 57,840 gallons per year). In addition, an estimated 145,000 gallons, or

0.45 AF, of water would be required for irrigation of the proposed landscaping for screening purposes.

The use of potable water is not required for long-term operation of the proposed facilities. Water trucks would be filled at a local water source with DI water and transported to the site for use when maintenance activities are scheduled to occur. Table 3 summarizes the total estimated water demand for operation and maintenance of the Project per year. As shown in Table 3, the total estimated water demand for operation and maintenance is 238,315 gallons, or 0.73 AF, annually.

**TABLE 3**  
**TOTAL ESTIMATED WATER DEMAND FOR OPERATION & MAINTENANCE (ANNUAL)**

Activity	Total Estimated Water Demand	Approximate Size/Unit	Total Estimated Water Used
Soil Binding / Dust Control	825 gallons / acre <sup>1</sup>	43 acres	35,475 gallons
Panel Washing	1 gallon / panel <sup>2</sup>	57,840 panels	57,840 gallons
Landscaping	---	145,000 gallons	145,000 gallons
<b>Total Operation/Maintenance Water per Year</b>	---	---	<b>238,315 gallons (0.73 AF)</b>

Note: One acre-foot (AF) = 325,851 gallons.

<sup>1</sup>1,650 gallons to be applied every two years (1,650/2=825 per year)

<sup>2</sup>Each panel requires half a gallon of water per wash, two times per year

### Storm Water / Drainage

A significant increase in storm water runoff or treatment needs from the areas affected by the Project is not anticipated to occur. Storm water runoff in areas where the proposed PV solar facilities would be installed would remain generally unchanged following construction. In addition, the solar panels and supporting structures would occupy a minimal building footprint on the affected properties and would not require or result in a significant change in existing conditions with regard to storm water runoff or treatment needs. As applicable, storm water runoff and treatment would be adequately handled through the implementation of onsite best management practices (BMPs) and/or other design measures and would not result in or require significant changes to existing offsite storm drain facilities.

### Other Utilities

The site would be unmanned and therefore, the Project would not require connection to a public sewer system or construction of a septic system. Electric and gas service are presently provided to the Project site. The proposed Project would generate electricity via the PV solar panels; the use of natural gas is not anticipated, and therefore, the extension of such services to the site is not required or proposed.

## **Public Services**

### ***Fire Protection Services***

The Project would be served by the Ramona Fire Protection District (RFPD). The Project site is located within the County's Wildland Urban Interface area. As such, Project design provides for a 30-foot wide brush clearing zone to reduce the potential for wildfire to occur and/or spread. A 100-foot fire management zone (FMZ) would also be established around the existing onsite structures for fire protection services. Water for fire protection purposes would be provided via the existing fire hydrant located in Warnock Drive.

As requested by the County Department of Planning and Land Use, the applicant has prepared a Fire Protection Plan (FPP) Letter Report to address water supply, access, building ignition and fire resistance, fire protection systems and equipment and vegetation management with regard to fire code requirements. The FPP Letter Report shall meet all requirements of Article 86, Section 8601 of the California Fire Code.

## **DECOMMISSIONING PLAN**

Once built, the Project would operate at a minimum for the 25-year life of its Power Purchase Agreement (PPA). It is likely, because much of the needed electrical infrastructure will have been developed, the Project would continue to be upgraded and used to generate solar energy even beyond the term of the initial PPA. Therefore, it is possible that the site would remain in solar energy production for the foreseeable future.

If the Project were ever to be decommissioned, the panels, support structures, and electrical equipment would be removed from the site and it would be returned to a use consistent with the current zoning of the Site (A-72). These uses include residential; civic uses including essential services, fire protection services, law enforcement services; and, agricultural use types, including horticulture (all types), tree crops, row and field crops, and limited packing and processing. The proposed land use would be selected at the time of decommissioning.

Financially, the Project and Site owner would assume responsibility for decommissioning. The costs of decommissioning would be relatively low as no earthwork would be necessary, and the panels, support structures, and electrical equipment would be salvaged and recycled.

## **PROLIFERATION**

In the broad spectrum of renewable energy projects, this Project fits into the category known as Distributed Generation (DG). Wholesale DG is currently the most cost-effective

renewable energy market segment because it optimizes the utilization of appropriate and available sites to serve local load, thus avoiding costs and delays associated with transmission upgrades that are required for larger, central station projects located far from the load being served.

Distributed Generation projects by definition feed electricity into distribution lines, i.e. the electric lines serving customers and not the electric lines that transmit power over long distances (transmission lines). In California, distribution lines generally operate at 12-35kV whereas transmission lines operate at 60-500kV. Distribution lines originate from a utility's substation, where transformers reduce the transmission line voltage to the distribution line voltage. Each substation will have one or more distribution circuits connected to it. In the case of Ramona's Creelman substation, there are eight numbered distribution circuits – all operating at 12kV – that originate from it: Circuits 236, 237, 970, 971, 972, 973, 974, and 975. The Sol Orchard Ramona Solar Farm will tie into Circuit 971, which runs west along Creelman Lane after leaving Creelman substation, then jogs from Creelman Lane to Keyser Road to Warnock Drive to Ramona Street and finally Dye Road, following Dye Road as it heads further west a great ways.

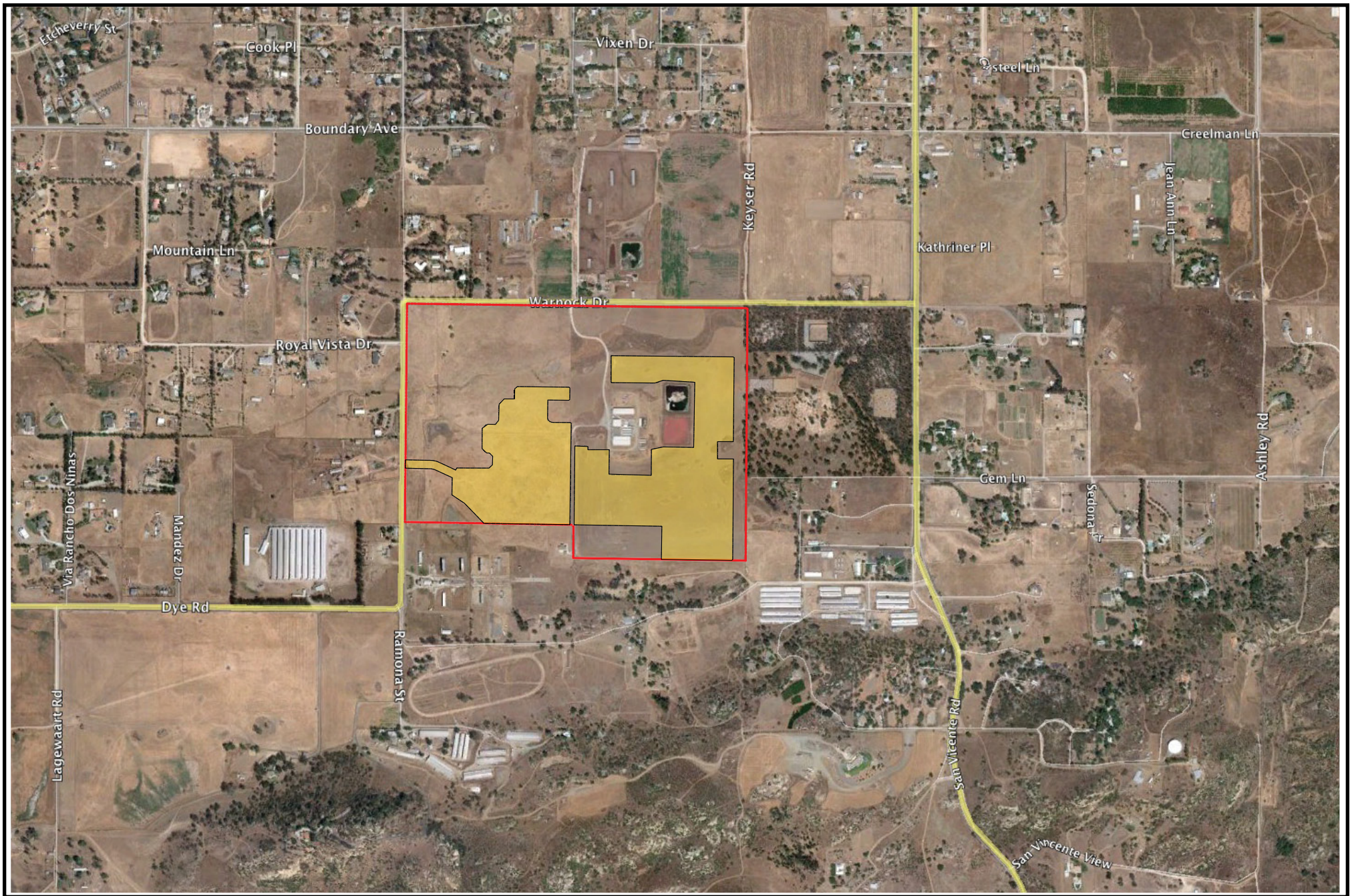
The implementation of Distributed Generation projects is dictated in part by local electric demand and local electric system infrastructure. DG projects can't be sized larger than the local distribution substation's capacity, or larger than the rating of the distribution circuit that it feeds. SDG&E's Creelman substation has three 30MVA distribution banks which could serve a maximum combined load of 90 MW. The Sol Orchard Ramona Solar Farm is sized at 7.5MW and was the first project to file a distribution interconnect application for a circuit originating from the Creelman substation, so the Project is first-in-line for feeding electricity into the local distribution system. The circuit fed by the Project is rated at 10MW based on wire size.

Without upgrading the Creelman substation by adding more distribution banks (a multi-million dollar and multi-year endeavor), the most generation that could feed into the Creelman substation's distribution system is equal to the combined distribution bank capacity of 90 MW. It is not realistic that a DG project would pay the anticipated \$5M+ cost to increase the distribution capacity of the substation further. Instead a significantly larger, central station project might be proposed that feeds power directly into the 69kV transmission lines that would send that project's power to another load center, as is the case with the 26MW project just approved in Borrego Springs.









SOL ORCHARD - RAMONA

## LOCAL VICINITY MAP

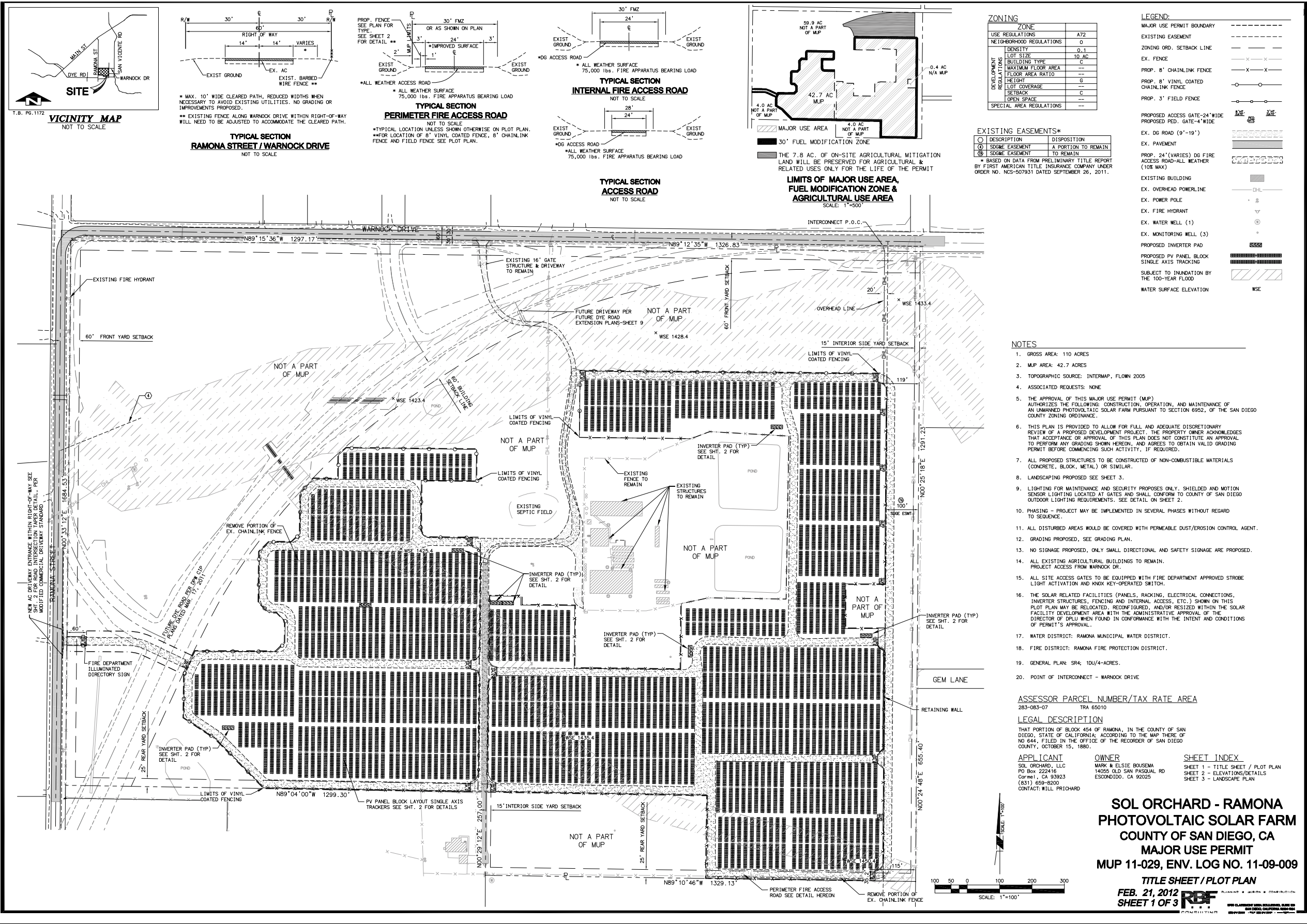
Figure 2

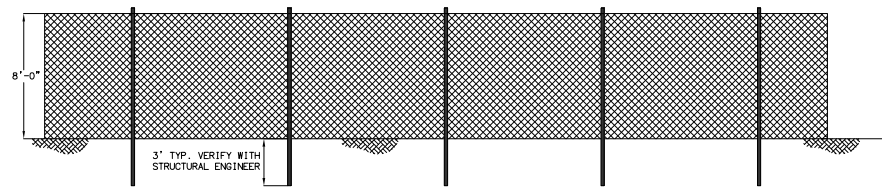


- MUP Boundary
- Parcel Boundary

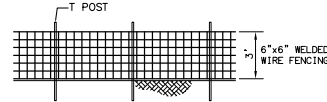
Source: Eagle Aerial Imagery





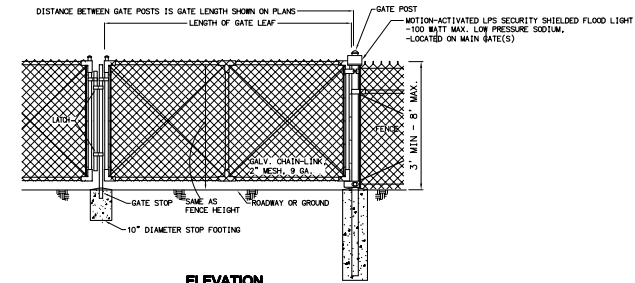


**ELEVATION  
CHAINLINK FENCING**  
N.T.S.

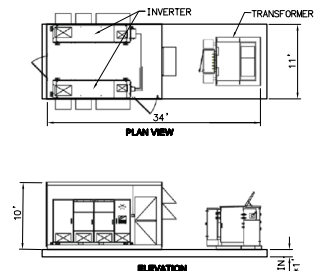


**ELEVATION  
FIELD FENCE DETAIL**  
N.T.S.

NOTE:  
SEE PLOT PLAN SHEET 1 FOR LOCATION OF FENCING TYPE:  
• 8" CHAIN-LINKED FENCE WITH VINYL COATING  
• 8" CHAIN-LINKED FENCE  
• 3' FIELD FENCE

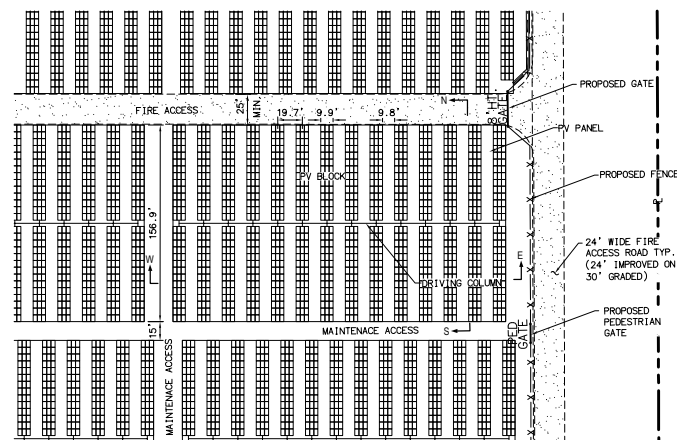


**ELEVATION  
HALF / DOUBLE DRIVE GATE**  
N.T.S.

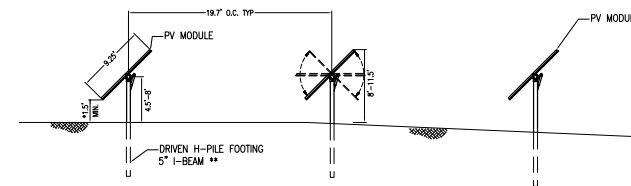


**INVERTER / TRANSFORMER PAD**  
N.T.S.

\* NOTE: INVERTER / TRANSFORMER FINISH FLOOR TO BE A MIN. 1" ABOVE BASE FLOOD ELEVATION (BFE), MAX. BASE FLOOD 1 FOOT PER HYDROLOGY/HYDRAULIC CALCULATIONS.  
\* ALL ACCESSORY STRUCTURES SHALL BE PAINTED OR VISUALLY TREATED TO BLEND WITH THE SURROUNDINGS



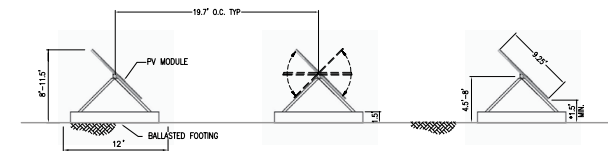
**PLAN VIEW  
TYPICAL BLOCK LAYOUT**  
N.T.S.



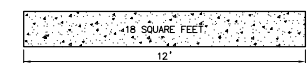
**DRIVEN H-PILE FOOTING**  
POLE HEIGHTS MAY VARY TO FIT EXISTING TERRAIN (NO GRADING PROPOSED)  
\*\* DEPTH OF FOOTING TO BE DETERMINED BY STRUCTURAL ENGINEER

**PROFILE VIEW  
TRACKER ELEVATION W-E**

\* NOTE: BOTTOM OF PANEL TO BE A MIN. 1" ABOVE BASE FLOOD ELEVATION (BFE), MAX. BASE FLOOD 1 FOOT PER HYDROLOGY/HYDRAULIC CALCULATIONS.



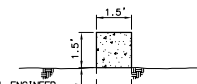
**BALLASTED FOUNDATION**  
RACK FRAMING HEIGHTS MAY VARY TO FIT EXISTING TERRAIN (NO GRADING PROPOSED). SEE BALLASTED FOOTING ALTERNATIVE BELOW.



**TOP VIEW**  
N.T.S.



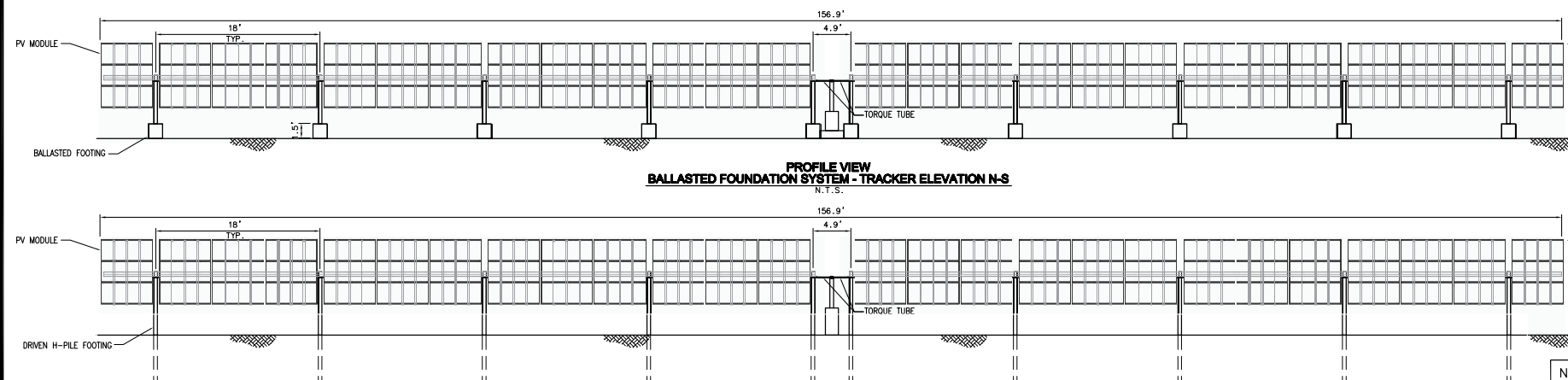
**SIDE VIEW**  
N.T.S.



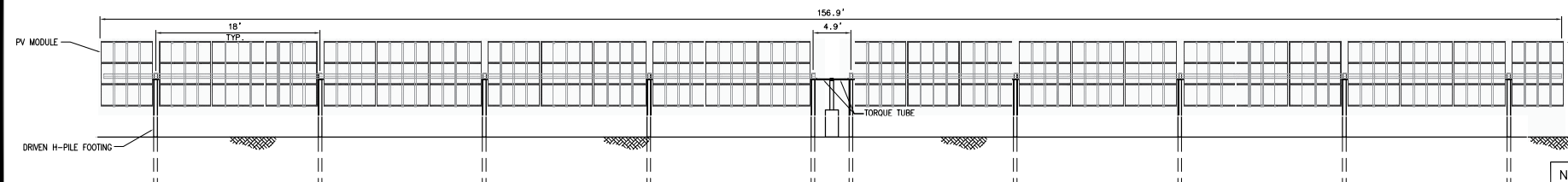
**SIDE VIEW**  
N.T.S.

**BALLASTED FOOTING (ALTERNATIVE)**

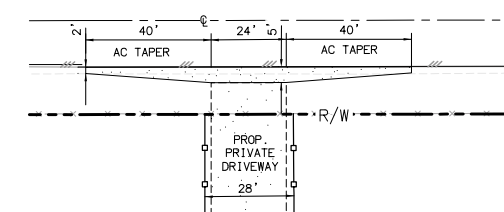
THE PROJECT'S STRUCTURAL ENGINEER, BASED ON EXISTING FIELD AND SOILS CONDITIONS, MAY RECOMMEND THE USE OF BALLASTED FOOTINGS IN LIEU OF THE TYPICAL DRIVEN H-PILE FOOTINGS. USE OF THE BALLASTED FOOTINGS IS LIMITED TO 10% (487) OF THE TOTAL NUMBER OF FOOTINGS. INDIVIDUAL OR SERIES OF BALLASTED FOOTINGS MAY BE INTERSPERSED WITHIN ROWS OF TYPICAL DRIVEN H-PILE FOOTINGS. SPACING OF BALLASTED FOOTINGS WILL MATCH INTERVALS AS SHOWN FOR THE TYPICAL DRIVEN H-PILE FOOTINGS.



**PROFILE VIEW  
BALLASTED FOUNDATION SYSTEM - TRACKER ELEVATION N-S**  
N.T.S.



**PROFILE VIEW  
DRIVEN H-PILE FOOTING - TRACKER ELEVATION N-S**  
N.T.S.



**ROAD INTERSECTION TAPERS**  
N.T.S.

**SOL ORCHARD - RAMONA  
PHOTOVOLTAIC SOLAR FARM  
COUNTY OF SAN DIEGO, CA  
MAJOR USE PERMIT  
MUP 11-029, ENV. LOG NO. 11-09-009**

**ELEVATIONS/DETAILS**

**FEB. 21, 2012  
SHEET 2 OF 3**

**RBF  
CONSULTING**

NOTE: TRACKER FOOTING TYPE TO BE DRIVEN H-PILE OR BALLASTED, LOCATION TO BE DETERMINED BY STRUCTURAL ENGINEER.



